

Liquid crystal defects in the Landau-de Gennes theory in 2D-beyond the one-constant approximation

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In this talk the two-dimensional Landau-de Gennes energy with several elastic constants, subject to general k -radial symmetric boundary conditions, will be analysed. It will be shown that for generic elastic constants the critical points consistent with the symmetry of the boundary conditions exist only in the case $k = 2$. In this case one can identify three types of radial profiles: with two, three or full five components. Finally, numerical results on domains of existence and stability of these radial solutions as well as of certain non-radial ones, so called two 1/2-defects solutions, will be collectively presented and discussed on the corresponding bifurcation diagrams in two cases: the usual case when the bulk energy vanishes on a uniaxial set of co-dimension 3, and degenerate one when it vanishes on a biaxial set of co-dimension 1.